

I CLAIM:

1. A differential displacement electromagnetic device for providing motion over water of a watercraft, said electromagnetic device including:

- 5 a) an elongated rigid rail member, to be anchored into the watercraft against the watercraft bilge, said rail member having one and another opposite end portion, and a stopper member anchored at an intermediate middle section thereof;
- b) a first module member, slidingly carried by said rail member at said one end portion thereof;
- 10 c) a second module member, slidingly carried by said rail member at said another end portion thereof, said second module member being of same mass as said first module member but having a pivot mount at a central portion thereof;
each of said first and second module member being magnetized;
- 15 d) a biasing member, biasing said first and second module member toward one another, said first and second module member abutting against said stopper member under bias of said biasing member when said electromagnetic device is at rest;
- e) a pair of elongated rigid arms, each having an inner end, pivotally mounted to said second module member pivot mount, and an outer end;
- 20 f) a pair of electromagnets, each of said electromagnets fixedly mounted to a corresponding one of said rigid arms outer end; and
- g) a power source, operatively connected to said first module member and second module member for generating an electromagnetic field of force about said magnets and said electromagnets;

25 wherein upon energizing said power source, magnetic repulsive sliding displacement of both said first and second module member occurs against the bias of said biasing member wherein said second module member travels by a longer distance along said rail relative to said first module member, and wherein upon de-energizing said power source, said first and second module member move toward one another and said first module member

strikes said stopper member before said second module member, so that motion of the watercraft over water may occur.

2. An electromagnetic device as in claim 1,
5 wherein each of said first and second module member further includes a notch facing said stopper member, said notch of complementary shape to a registering portion of said stopper member, both such notches being engaged by said stopper member when said electromagnetic device is at rest.

10 3. A powered watercraft comprising a hull including a bow section, a stern section opposite said bow section, and a bilge intermediate said bow section and said stern section, and a differential displacement electromagnetic device for providing motion over water of said watercraft, said electromagnetic device including:

- 15 a) an elongated rigid rail member, anchored into the watercraft against the watercraft bilge, said rail member having one and another opposite end portion and a stopper member at an intermediate middle section thereof;
- b) a first module member, slidingly carried by said rail member at said one end portion thereof;
- 20 c) a second module member, slidingly carried by said rail member at said another end portion thereof, said second module member being of same mass as said first module member but having a pivot mount at a central portion thereof;

each of said first and second module member being magnetized;

- 25 d) a biasing member, biasing said first and second module member toward one another, said first and second module member abutting against said stopper member under bias of said biasing member when said electromagnetic device is at rest;
- e) a pair of elongated rigid arms, each having an inner end, pivotally mounted to said second module member pivot mount, and an outer end;
- 30 f) a pair of electromagnets, each of said electromagnets fixedly mounted to a corresponding one of said rigid arms outer end; and

g) a power source, operatively connected to said first module member and second module member for generating an electromagnetic field of force about said magnets and said electromagnets;

5 wherein upon energizing said power source, magnetic repulsive sliding displacement of both said first and second module member occurs, against the bias of said biasing member wherein said second module member travels by a longer distance along said rail relative to said first module member, and wherein upon release of said energizing of said power source, said first and second module member move toward one another and said first module member strikes said stopper member before said
10 second module member, so that said watercraft is provided with motion over water.

4. A powered watercraft as in claim 3,
further including a CPU, operatively connected to said power source and to said first and second module member, wherein there are at least two laterally spaced said
15 electromagnetic device, and wherein said motion over water of said watercraft consists of steerable forward bow section thrust.

5. A powered watercraft as in claim 3,
wherein each of said first and second module member further includes a notch facing said stopper member, said notch of complementary shape to a registering portion of said stopper member, both such notches being engaged by said stopper member when said
20 electromagnetic device is at rest.